EXTANT CLAIMS

Following are clean copies of the claims as revised herewith:

Sub C1

17. ~~*(copied from Claim 5 of 09/524088)* A method for determining a volume of formation cut by each one of a plurality of roller cones on a drill bit drilling in earth formations, comprising:~~

selecting bit design parameters, comprising at least a geometry of a cutting element on the drill bit;

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selecting an earth formation;

calculating from the selected bit design parameters and the selected earth formation, parameters for a crater formed when each one of a plurality of cutting elements on each of the roller cones contacts the earth formation, the parameters including at least a volume of the crater;

incrementally rotating the bit, and repeating the calculating of the crater parameters for a selected number of incremental rotations; and

combining the volume of each crater formed by each of the cutting elements on each of the roller cones to determine the volume of formation cut by each of the roller cones.

Sub C1 18. (copied from Claim 16 of 09/524088): A method for balancing a volume of formation cut by each one of a plurality of roller cones on a drill bit drilling in earth formations, comprising:

selecting bit design parameters, comprising at least a geometry of a cutting element on the drill bit;

selecting an earth formation;

calculating from the selected bit design parameters and the selected earth formation, parameters for a crater formed when each one of a plurality of cutting elements on each of the roller cones contacts the earth formation, the parameters including at least a volume of the crater;

B1 incrementally rotating the bit, and repeating the calculating of the crater parameters for a selected number of incremental rotations;

combining the volume of each crater formed by each of the cutting elements on each of the roller cones to determine the volume of formation cut by each of the roller cones; and

adjusting at least one of the bit design paranieters, and repeating the calculating the crater volume, incrementally rotating and combining the volume until a difference between the combined volume cut by each of the cones is less than the combined volume determined prior to the adjusting the at least one of the bit design parameters.